BOSCH
Invented for life

FCP-500 Conventional Automatic Fire Detectors

- **Modern, ultra-flat design**
- **Matches the surrounding decor by using color toning inserts**
- **Smooth, easily-cleaned detector surface**
- **Innovative fastening mechanism**
- **High reliability**

FCP-500 Conventional Automatic Fire Detectors satisfy the most demanding aesthetic requirements owing to their flat design, which offers flush ceiling mounting and the option of color matching.
The FCP-500 is available as a scattered light smoke detector or as a multi-sensor detector with an additional gas sensor. The respective versions of the detectors are available in white or transparent with color inserts.

Functions

The smooth, flush-installation surface means the FCP-500 detectors can be installed in areas with high aesthetic requirements. In addition, the fire detectors are suitable for areas with heightened dust exposure.
The detectors and trim rings in the "transparent with color inserts" version are always supplied complete with reversible printed color rings, which offer a choice of 16 colors for individual color matching.

Sensor technology and signal processing

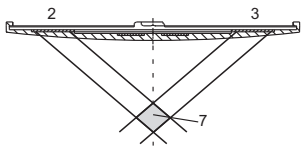
All detectors in the FCP-500 series are equipped with two optical sensors and a pollution sensor. The FCP-OC 500 multisensor detector contains a gas sensor as an additional detection channel.

All sensor signals are constantly analyzed by the internal signal evaluation electronics and are linked with each other through algorithms.

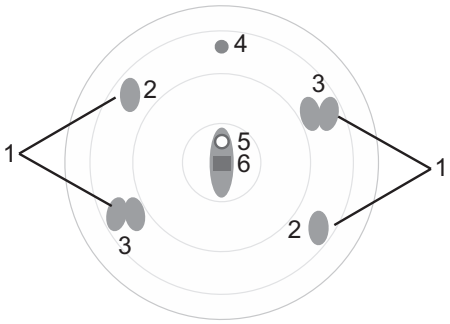
By linking the optical sensors and the gas sensor, the OC detector can also be used in places where the work carried out gives rise to small amounts of smoke, steam or dust. The alarm will only be triggered automatically if the signal combination corresponds with the detector's characteristic diagram. Consequently, a very high reliability against false alarms is obtained.

Optical sensor (smoke sensor)

The optical sensor (1) operates according to the scattered light method. The LEDs (3) transmit light at a defined angle into the scattered light area (7).



In case of fire, the light is scattered by the smoke particles and strikes the photo diodes (2), which transform the quantity of light into a proportional electrical signal.



Interference effects from daylight and commercial lighting sources are filtered out with an optical daylight filter and by the use of electronic filtering and phase-locked rectification (ambient light stability: glare test DIN EN 54-7).

The various light-emitting and photo diodes of the sensor are individually controlled by the detector electronics. Consequently, signal combinations are produced that are independent of each other and ideally suitable for the detection of smoke, which makes it possible to differentiate between smoke and interference agents (insects, objects). In addition, the time characteristics and the correlation of the optical sensor signals for the fire or interference detection are evaluated.

Moreover, plausibility checking of the various signals makes it possible to detect errors in the analysis electronics and the LEDs.

Chemical sensor (CO gas sensor)

The gas sensor (4) detects mainly the carbon monoxide (CO) that is produced by a fire, but it also detects hydrogen (H) and nitrogen monoxide (NO).

The basic measuring principle is CO oxidation on an electrode and the measurable current that arises from this. The sensor signal value is proportional to the concentration of gas.

The gas sensor delivers additional information to effectively suppress deceptive values.

Depending on the service life of the gas sensor, the FCP-OC 500 detector switches off the C sensors after five years of operation. The detector will continue to function as an O detector. The detector should then be exchanged immediately in order to be able to keep using the higher reliability of detection of the OC detector.

Pollution sensor

The contamination level on the detector surface is continually measured by the pollution sensor (6); the result is evaluated and indicated.

Contamination of the detector surface leads to active adaptation of the threshold value (closed-circuit value correction).

Further performance characteristics

Various operating states are indicated on the detector by means of a clearly visible two-color LED. In the event of an alarm, the LED flashes red.

The innovative detector locking, which operates on the ballpoint-pen principle, provides fast and simple insertion and replacement of the detector. We recommend the specially developed FAA-500-RTL exchanger device, especially in the case of high installation heights.

To allow convenient detector testing, the FAA-500-TTL test adapter with magnet and additional service accessories is available.

Certifications and Approvals

Comply with:

- EN54-7:2000/A1:2002/A2:2006

Region	Certification	
Germany	VdS	G 205124 FCP-O 500/500-P
		G 205118 FCP-OC 500/500-P
Europe	CE	FCP-500
	CPD	0786-CPD-20203 FCP-O 500 / 500-P
		0786-CPD-20204 FCP-OC500 / 500-P

Installation/Configuration Notes

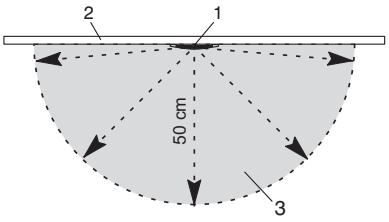
- Can be connected to:
  - Conventional Fire Panel BZ 1012/1016/1024/1060
  - Universal Fire Panel UEZ 1000
  - Universal Fire Panel UGM 2020

  - Other panels or their receiver modules with identical connection conditions
  - UEZ 2000 LSN, BZ 500 LSN, FPA-5000 and FPA-1200 via appropriate interfaces
- The detectors and detector bases can be used together with the „Rotaris" lamp by Philips.
- The FCP-OC 500, like the FCP-O 500, is planned according to the guidelines for optical detectors (see DIN VDE 0833 Part 2 and VDS 2095).
- The detectors must be installed exclusively in the FCA-500 bases provided. In addition, the detector base must be installed in an FAA-500-BB ceiling mount back box or in FAA-500-SB surface mount back box.

Note For flush ceiling mounting with FAA-500-BB: The false ceiling may have a maximum thickness of

Note 32 mm. Above the false ceiling, a free height of at least 110 mm is required.

- FCP-500 detectors are not intended for outdoor use.
- A hemispherical space with a radius of 50 cm must remain free below the detectors.



1 Detector
2 Ceiling
3 hemispherical space below the detector

- Care must be taken to ensure that neither people, larger animals, plants nor any objects intrude into this area and that no parts of the detector surface become covered.
- The detectors may only be installed in a position which is out of arm's reach. We therefore recommend a minimum installation height of 2.70 m.
- The detectors may not be installed in rooms in which data is transmitted by means of high-intensity infra-red light (e. g. in rooms with IR systems for interpreters).
- The detectors must be mounted so that they are not exposed to any direct sunlight.
- A minimum distance of 50 cm from lamps must be maintained. The detectors may not be mounted in a cone of light from lamps.
- The bases are equipped as standard with a spring which is suitable for installation of the detector in false ceilings. When the detector is installed in concrete or wooden ceilings, these need to be replaced by the stronger springs FAA-500-SPRING with red markings.
- Maximum permitted air speed: 20 m/s
- Country-specific standards and guidelines must be observed during the planning phase.
- Technical Specifications

Parts Included

Detector type	Qty.	Components
FCP-O 500	1	Optical Smoke Detector, White
FCP-O 500-P	1	Optical Smoke Detector, Transparent with Color Inserts
FCP-OC 500	1	Multisensor Detector Optical/Chemical, White
FCP-OC 500-P	1	Multisensor Detector Optical/Chemical, Transparent with Color Inserts

Technical Specifications

Electrical

Operating voltage	8.5 V DC bis 33 V DC
Standby current	
• FCA-500-EU	3 mA
• FCA-500-E-EU	24 mA
Alarm current	47 mA
Fault current	
• FCA-500-EU	52 mA
• FCA-500-E-EU	58 mA
Alarm resistance	0 Ω (UL application) or 680 Ω
Fault relay output	NC / C
Indicator output	Relay connects 0 V over 1.5 kΩ

Mechanics

Individual display	Two-color LED, red (alarm), green (test mode)
Dimensions	
Detector	Ø 113 x 55 mm
Detector with trim ring	Ø 150 x 55 mm
Detector with cover, base and ceiling mount back box	Ø 150 x 110 mm
Housing material	Polycarbonate
Housing color	Signal white, RAL 9003
Front plate color	
FCP-O 500/ FCP-OC 500	Signal white matt
FCP-O 500-P/ FCP-OC 500-P	Transparent/silver-gray
Weight	Without / with packaging
FCP-OC 500(-P)	180 g / 370 g
FCP-O 500(-P)	170 g / 360 g
Trim Ring	30 g / 60 g

Environmental conditions

Protection class as per EN 60529	
FCP-O 500 (-P)	IP 53
FCP-OC 500 (-P)	IP 33
Permissible operating temperature	
FCP-O 500 (-P)	-20 °C bis +65 °C
FCP-OC 500 (-P)	-10 °C bis +50 °C
Permissible relative humidity	95% (non-condensing)
Permissible air speed	20 m/s

Planning

Monitoring area	Max. 120 m^2 (Heed local guidelines!)
Maximum installation height	Max. 16 m (Heed local guidelines!)
Minimum installation height	Out of arm's reach Minimum installation height recommended by BOSCH: 2.70 m
In the case of flush ceiling mounting with ceiling mount back box	
Thickness of the false ceiling	Max. 32 mm
Required bored hole	Ø 130 mm (-1 mm bis +5 mm)
Installation depth	110 mm Note: Above the false ceiling, a free height of at least 110 mm is required.
Minimum distance to lamps	0.5 m

Special features

Detection principle	
• FCP-O 500 (-P)	Scattered light measurement
• FCP-OC 500 (-P)	Combination of scattered light measurement and combustion gas measurement
Features	
• All FCP-500 detectors	Contamination detection Drift compensation (optical section)
• In addition, for FCP-OC 500(-P)	Drift compensation in the gas sensor section
Response sensitivity	
• FCP-O 500 (-P)	< 0.18 dB/m (EN 54-7)
• FCP-OC 500 (-P)	Optical section: < 0.36 dB/m (EN 54-7) Gas sensor section: in ppm range

Ordering Information

FCP-O 500 Optical Smoke Detector, White ultra-flat design, conventional technology	**FCP-O 500**
FCP-O 500-P Optical Smoke Detector, Transparent with Color Inserts ultra-flat design, conventional technology	**FCP-O 500-P**
FCP-OC 500 Multisensor Detector Optical/Chemical, White ultra-flat design, conventional technology	**FCP-OC 500**
FCP-OC 500-P Multisensor Detector Optical/Chemical, Transparent with Color Inserts ultra-flat design, conventional technology	**FCP-OC 500-P**
Accessories	
FAA-500-TR-W Trim Ring, White for 500 and 520 Series Fire Detectors	**FAA-500-TR-W**
FAA-500-TR-P Trim Ring, Transparent with Color Inserts for 500 and 520 Series Fire Detectors	**FAA-500-TR-P**
FCA-500-EU Conventional Base for the FCP--500 Series detectors	**FCA-500-EU**
FCA-500-E-EU Conventional Base EOL for the FCP-500 Series detectors, with integrated EOL resistor	**FCA-500-E-EU**
FAA-500-BB Ceiling Mount Back Box for ceiling flush installation in false ceilings when mounting 500 and 520 Series Bases and Fire Detectors	**FAA-500-BB**
FAA-500-CB Built-in Housing for Concrete Ceilings for installing 500 and 520 Series Fire Detectors in concrete ceilings. In addition, you need to order a FAA-500-BB Ceiling Mount Back Box, which contains the base and the detector.	**FAA-500-CB**
FAA-500-SB Surface Mount Back Box for special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling	**FAA-500-SB**
FAA-500-SB-H Surface Mount Back Box with Damp Room Seal for special applications where it is not possible to flush-mount the 500 and 520 Series Fire Detectors in a ceiling	**FAA-500-SB-H**
FAA-500-SPRING for Concrete/Wooden Ceilings (DU = 10 units)	**FAA-500-SPRING**

FCP-500 Conventional Automatic Fire Detectors

	FCP-O 500	FCP-O 500-P	FCP-OC 500	FCP-OC 500-P
Detector type	optical	optical	optical/chemical	optical/chemical
Operating voltage	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC	8.5 V DC . . . 33 V DC
Current consumption				
- Standby current	FCA-500-EU: 3 mA FCA-500-E-EU: 24 mA	FCA-500-EU: 3 mA FCA-500-E-EU: 24 mA	FCA-500-EU: 3 mA FCA-500-E-EU: 24 mA	FCA-500-EU: 3 mA FCA-500-E-EU: 24 mA
- Alarm current	47 mA	47 mA	47 mA	47 mA
- Fault current	FCA-500-EU: 52 mA FCA-500-E-EU: 58 mA	FCA-500-EU: 52 mA FCA-500-E-EU: 58 mA	FCA-500-EU: 52 mA FCA-500-E-EU: 58 mA	FCA-500-EU: 52 mA FCA-500-E-EU: 58 mA
Protection category	IP 53	IP 53	IP 33	IP 33
Permissible operating temperature	-20 °C . . . +65 °C	-20 °C . . . +65 °C	-10 °C . . . +50 °C	-10 °C . . . +50 °C
Monitoring area	max. 120 m²	max. 120 m²	max. 120 m²	max. 120 m²
Maximum installation height	16 m	16 m	16 m	16 m
Color	white	transparent with color inserts	white	transparent with color inserts

Americas:
Bosch Security Systems, Inc.
130 Perinton Parkway
Fairport, New York, 14450, USA
Phone: +1 800 289 0096
Fax: +1 585 223 9180
security.sales@us.bosch.com
www.boschsecurity.us

Europe, Middle East, Africa:
Bosch Security Systems B.V.
P.O. Box 80002
5600 JB Eindhoven, The Netherlands
Phone: + 31 40 2577 284
Fax: +31 40 2577 330
emea.securitysystems@bosch.com
www.boschsecurity.com

Asia-Pacific:
Robert Bosch (SEA) Pte Ltd, Security Systems
11 Bishan Street 21
Singapore 573943
Phone: +65 6258 5511
Fax: +65 6571 2698
apr.securitysystems@bosch.com
www.boschsecurity.asia

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